



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Response to Office Action of November 7, 2002

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10/2103
J. Ante

TITLE OF INVENTION: Segmented Electrode Hall Thruster with Reduced Plume

APPLICANTS: Nathaniel J. Fisch and Yevgeny Raitses

ASSIGNEE: General Plasma Technologies LLC

APPLICATION NUMBER: 09/834/373

EXAMINER: Kevin Quarterman

ART UNIT: 2879

Hon. Assistant Commissioner for Patents
Box Patent Application
Washington DC 20231

Dear Sir:

This paper is responsive to the Office Action of November 7, 2002.

The paragraphs below respond to the paragraphs of the Detailed Action.

Paragraph 1: A typographical error in the specification was changed so that the magnetic field lines **10** of Figures 2 and 3 are now mentioned in the specification.

Paragraph 2: The reference character **14** of Figure 4 has been changed to **26**. The text describing Figure 4 now refers as well to the step of the electrode segment **26**. Similarly, reference character **15** designating the side of the electrode segment in Figure 4 has been changed to reference character **27**.

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Paragraph 3: The drawings have been amended as described in Paragraph 2 above.

Paragraph 4: The informalities in the specification have been amended as described in Paragraphs 1 and 2 above.

Paragraphs 5 — 8: Examiner objects to claims 1—20 based on a doctrine of double-patenting as being unpatentable over claims 1 — 20 of U.S Patent 6448721, “Cylindrical Geometry Hall Thruster,” by the same inventors as Application 09/834/373. Issue is taken with respect to this position. The doctrine of double patenting does not apply here, because US Patent 6448721 refers to a very special cylindrical geometry thruster, whereas Application 09/834/373 refers to the conventional annular geometry Hall thruster. Accordingly, Claims 15 — 20 of US Patent 6448721 are dependent on Claim 14 of that patent, which is limited to a cylindrical geometry thruster. In contrast to these Claims, in applicant’s invention, Claims 1 — 20 of Application 09/834/373 refer to an annular geometry thruster. The cylindrical geometry thruster is entirely different from the annular geometry thruster. The magnetic field geometry is likewise entirely different for these two geometries as can be seen from the respective figures. It is by no means obvious that the use of external electrodes would work in the cylindrical geometry if they worked in the annular geometry. Similarly, it is by no means obvious that the use of external electrodes would work in the annular geometry if they worked in the cylindrical geometry. Even if they worked in both geometries, the placement of these electrodes would be entirely different, both because the magnetic geometry is entirely different and because the cylindrical geometry has only one surface on which to place electrode segments, whereas the annular geometry affords two surfaces on which to place electrode segments. Moreover, the present invention teaches specific optimizations of the electrode placement in an annular geometry, which obviously would not be teachable from the cylindrical geometry.

The resubmitted patent application corrects the informalities described in the Office Action Paragraphs 1— 4. Moreover, in view of the distinctions pointed out above, it is

deemed that the application does not suffer from double patenting. Therefore, rejection of claims 1 — 20 is inappropriate and should be reconsidered and withdrawn.

Respectfully submitted by,



Nathaniel J. Fisch

Applicant

August 29, 2003